

Turnbull *L. J. S. Bellings*
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of the Author

SEVERAL METHODS OF EDUCATING,

AND ON THE

SELECTION OF PROPER SCHOOLS FOR, THE
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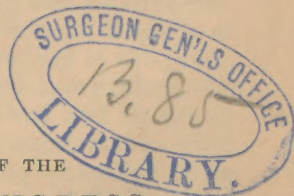
CAUSES OF AURAL DISEASE.

BY

LAURENCE TURNBULL, M.D.,

FELLOW OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, AURAL SURGEON
TO JEFFERSON COLLEGE HOSPITAL, PHYSICIAN TO THE DEPARTMENT OF DISEASES
OF THE EYE AND EAR, HOWARD HOSPITAL, PHILADELPHIA.

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ON THE SEVERAL METHODS OF EDUCATING, AND ON THE SELECTION OF PROPER SCHOOLS FOR, THE DEAF AND DUMB.

THE lot of the uneducated and ignorant deaf-mute is sad indeed ; cut off from intercourse with his fellow-man by loss of speech, and unable to obtain instruction or amusement from such intercourse, or through books, he is left to "Nature," and is governed by naught but his animal passions and appetites. It is no wonder then that, when these latter are in full development, he becomes allied to certain of the brute creation. From my own dissections of the brain of the deaf-mute, as from those of many careful observers, it is rendered probable that the deaf and dumb are capable of receiving and retaining as great an amount of intellectual knowledge as their hearing brothers or sisters, provided that adequate instruction be made available through the eye.

As early as the fifteenth century, some effort was made to teach deaf-mutes, but it is to the sixteenth century that is due the great honor of having been the period of jubilee to the deaf and dumb ; and to the Abbé de L'Épée was given the great gift of teaching deaf-mutes by a symbolic language, so that they might know good from evil, have intercourse with a select few of their fellow-men, and above all acquire such aspirations after true knowledge as would fit them for a happy home here, and for a better world above. Another devoted man, the Abbé Sicard, who took up the clue already furnished by de L'Épée, adopted sign-language, and enlarged, improved, and reduced it to a system. The knowledge of this valuable method soon crossed the Atlantic, and its advocate, the Rev. Thomas H. Gallaudet, D.D., founded the American Asylum at Hartford, Conn. (1817), and, soon after (1820), M. Clerc (one of the favorite pupils of Sicard), who came over with Dr. Gallaudet, organized the Pennsylvania Institution for the Instruction of the Deaf and Dumb, in Philadelphia. This institution has sent out, since its organization, 1700 pupils, well educated, and with a careful moral training which has been of inestimable advantage to them and to the community at large. Germany was not long after France in this philanthropic labor, for, in 1760, Samuel Heinicke, a Saxon by birth, developed the "artificial method" of instruction for deaf-mutes. The principal aim of this good man was to improve the "French system," and to endeavor to cultivate whatever might remain of speech, by developing the latent power which exists in all save a very few. In the early stage of this system, artificial signs are absolutely necessary ; but when these have been acquired, they are to be employed only as a ladder to reach the higher department, where the finger-alphabet and other artificial signs are no longer required. When successfully taught by this system, pupils are enabled to think in the

idioms of the language of their country, to hold audible conversation, and so understand much that is spoken to them, being thus rendered practically less deaf, and actually less dumb.

Another advance which has been made in the further improvement of the mode of instruction of the deaf-mute, comes from England, in the system known as "Bell's Method of Visible Speech," which, having received but little attention in the country of its origin, was brought by its author to the United States, where it has been received and adopted in seven of our forty-eight institutions, and with the most gratifying results. I do not find fault with what has been done under the old methods, but rather rejoice that so many thousands of deaf-mutes have received the advantages of an education by means of the sign language, and of articulation taught by the German method. I would also state that the United States have a "National College" at Washington, where more advanced studies can be pursued, and where young deaf-mutes are graduated with a standing and scholarship not inferior to that achieved by the graduates of ordinary colleges. This institution bears to others for the deaf and dumb, the same relation that colleges bear to schools and academies. Many of the graduates of this college have received appointments as teachers, while others are editors, authors, and writers, or are found in the various government offices, in the exercise of duties which they are quite capable of performing in an entirely satisfactory manner. In our Centennial Exhibition will be found some admirable pictures executed by deaf-mutes, as well as other products of their pencils and pens. They are also capable handicraftsmen, and are to be found in our shops and factories, as well as in the Industrial Homes founded in this city for their special benefit.

Bell's method or system of visible speech gives the pupil, by means of drawings, etc., a knowledge of the concealed parts of the mouth and throat, which are used in articulation, as also of the movements of the various parts, so that the pupil is thus better able to gain conscious control over them. This method of writing any sounds that the pupils may utter, serves to interest them in the practice of the elements and combinations, thus giving them great power over their organs of speech, and obviating the necessity of informing them that a sound is wrong if it is not the one which the teacher wishes to obtain. It is the practice of those who teach this system to write all sounds in the visible speech-symbols, and especially those that are essential in English speech. The symbolizing of odd sounds also leads the pupil to think and study about the parts of the mouth that produce them.

I shall now discuss the following questions: (1) What is the best method of classifying deaf children, and is it advisable to place them in ordinary, or in special, schools? and (2) How many deaf-mutes are capable of receiving Bell's method of instruction, and should the attempt be made to instruct all deaf-mutes by articulation, or by the sign language only? Not having heard Dr. Blake's paper, I shall attempt to answer these questions from my own personal observations.

If a child can hear sufficiently well to understand the teacher when near him, the ordinary school is, for him, decidedly better than a special school. Children sometimes become deaf after having learned to talk and read; such children may profitably attend an ordinary school, provided that the parents or teacher take time to explain the lessons; but if this be not done, the child will often recite in a parrot-like manner, without understanding what he has learned, and will go over a great deal

of ground with very little profit. This has been the experience of teachers of deaf-mutes, even when the pupil has learned to read quite well by observing the lips of the speaker. Congenital deaf-mutes, attending an ordinary school, may learn to write, or rather to copy, and may perhaps get some idea of numbers; but the teachers of such schools do not know how to reach their pupils' minds, even if they have the time to teach them. As a rule, such children might as well be at play, except that school occupies their time and their thoughts. Another advantage, however, which is gained for the deaf-mute children, is in their mingling as much as possible with those who hear.

If a child cannot profit by the instruction given in an ordinary school, let him if possible have a private teacher, but not necessarily in his own house, as he is not always subject to the best government there. If he needs stimulating, it may be well to place him in a class with four or five others of a suitable degree of advancement; and if this cannot be done, he may be placed in a school or institution where the instruction is especially adapted to the deaf.

If children are too deaf to profit by the common school, and yet have sufficient hearing to have acquired speech through the ear, instructors of the deaf are nearly or quite unanimous in the opinion that they should be taught by articulation and lip-reading. The experience of the teachers would lead them to say, "Let the attempt be made, if possible, to teach *every* deaf child in this way." Of 116 pupils in the "Clark Institution for Deaf-Mutes," three have been dismissed as incapable of learning articulation and lip-reading, and one because she required more individual instruction than could be given her. The latter, however, has since been taught, so that speech and lip-reading are her means of communication in her own home. Some of the remaining number of pupils (congenital mutes) speak imperfectly, but in every instance well enough to be understood in their own homes, while some of the indifferent speakers are fairly successful in lip-reading, an acquisition as valuable as that of speaking. Many congenital mutes speak so as to be understood by strangers, and will probably be able to make speech and lip-reading a successful means of communication throughout the world. Of the 116 pupils at the above-named institution, one-third are semi-mutes or semi-deaf, although some of those so classed have not had hearing enough to learn to talk.

My object in writing this brief paper has been: (1) To excite a greater degree of interest, in physicians, for the deaf-mute, with an endeavor on their part to prevent deafness, and so diminish the number of deaf-mutes; (2) To induce a more conscientious study and treatment, by physicians, of the ears of their patients, when the latter are attacked by scarlet or typhoid fever, cerebro-spinal meningitis, or obstruction of the Eustachian tubes as the result of measles, diphtheria, tonsillitis, or syphilis; (3) To lead physicians to give the systems of instruction pursued in our various institutions for the deaf and dumb, a certain amount of study, so as to be able to recommend intelligently to patients, their relatives, or friends, the best method for each individual case; and (4) To induce physicians to recommend that there should be appointed by the governor of each State, a commissioner, to collect, examine, and classify the deaf and dumb, so that all who are found to possess any degree of hearing, or any remnant of speech, may be taught articulation by the method of Bell, and that those who are unable to profit by this system, may be taught the language of signs, natural or acquired.

To aid them in their arduous work, I have recommended to some of our teachers of deaf-mutes, that their pupils should use mechanical appliances for improving the hearing power. By speaking or singing different vowels into one of these aids to hearing (tubes or trumpets), we can determine how much hearing the pupil possesses, and, if he be able to distinguish one vowel from another, a continued use of this mechanical aid may ultimately enable him to utilize audition as an auxiliary to vision. I have known very deaf persons, by the aid of this means alone, to have had their hearing so much improved that they could distinguish all ordinary sounds, and, by some effort, enter into conversation. Another important mechanical aid to persons who are deaf from diseases in which the tympanic membrane is lost, in part or in whole, but in which the inner small bone (the stapes) still remains, or in whose ears the bones have become stiff or ankylosed, is the pellet of cotton, moistened and applied near to the bones, or against the stapes, so as to bring the parts in closer contact with external vibrations, and thus cause the sounds to be transmitted to the auditory nerve.

In conclusion, I have added, chiefly from German authorities, the most recent views on the subject of phonation, knowing how much interest this subject is exciting in the minds of both physicians and teachers of the deaf and dumb, at the present day. Some writers have endeavored to prove that the brain molecules of the deaf and dumb differ from those of persons who hear; but, as I have already stated, the brain is rarely affected in those that are deaf, while, on the other hand, in many instances of extensive disease of the brain, not involving the auditory nerve, deafness has not resulted. Occasionally the spine is diseased, or the nerves which, coming from that great centre, give power to the tongue and larynx, thus rendering the deaf-mute unable to articulate, no matter how much instruction he may receive. Section of the spinal accessory, or of the inferior laryngeal nerve, entirely destroys the voice, so that these may be termed the true vocal nerves. If, therefore, the centre of phonation is situated in the spinal cord, it is plain that it cannot be found in the brain; anencephalous children have been known to scream under the influence of external excitation or internal pain. The centre of the memory for words, appears to reside in the brain, and attempts have been made to fix its seat in the anterior lobes, but the observations made on this subject are as yet contradictory. Each centre is independent of the other, for a cry may be easily uttered when articulation is very difficult. *Amnesia*, or the loss of memory for words, therefore, must be distinguished from *aphasia*, or the loss of power to pronounce them; the patient suffering from *aphasia* can still write his thoughts, while in *amnesia* he can only express himself by drawing a representation of the object to which he wishes to refer.

ON BATHING, SWIMMING, AND DIVING, AS CAUSES OF AURAL DISEASE.

SWIMMING and diving in cold water seem to me to be important and frequent causes of disease of the external auditory canal and anterior surface of the membrana tympani, as also of the middle ear, though bathing in river or sea water is, when wisely and properly regulated, both healthful and pleasant. The evils attending bathing and swimming in cold water are the entrance of this cold fluid, not only into the external meatus, but as far as the membrana tympani, causing inflammation of the lower portion of the auditory canal, and of the anterior surface of the tympanic membrane. But a still greater evil is from sudden deglutition, during diving or swimming, by which—the mouth, nose, and pharynx being filled with cold water, and the mouths of the Eustachian tubes open—a portion of the water passes into the middle ear. This result rarely occurs in expert swimmers or divers, but is most common in beginners, who suddenly, from cold, or the shock of the contact of the water, breathe or swallow in a sobbing manner. I have, however, known it to occur in old and experienced swimmers while plunging headforemost, owing to the intense coldness of the water—the act of deglutition being entirely involuntary.

If the water is not removed by placing the head to one side, and drawing the external ear forcibly outwards, shaking the head at the same time and opening the mouth, it is apt to cause inflammation, with the formation of pus, followed by perforation of the membrana tympani; or the inflammation, if neglected, may pass inwards to the cochlea and labyrinth, and, implicating the brain, may terminate in death.

It is a well-recognized maxim among those who devote special attention to diseases of the ear, that no cold fluid should be allowed to enter even the external auditory canal; still this important fact is not sufficiently recognized by the profession at large. The entrance of warm water into the ear is less objectionable, but even this is not quite free from danger, and has its disadvantages; and the water should in all cases contain a few grains of a saline ingredient, like borax, soda, or common salt, when employed in washing out the ear. The symptoms of water in the middle ear are, in the first stage, an uncomfortable sensation, followed by earache or pain, which after a time becomes agonizing, and is accompanied with great tenderness behind the auricle. In proof that water in the ears is injurious, and causes deafness, I might cite a number of instances, and it is a well-known fact that dogs which are *thrown* into water become deaf.

Many cases of this form of disease, in its chronic stage, come under treatment during all seasons, but acute cases, from swimming and diving, occur during the summer months, and chiefly in boys from eight to six-

teen years of age; a much smaller number occurring in the fall and winter. If the acute form is promptly treated, entire recovery takes place; but should the case not be seen until after the chill, it is always followed by a discharge of shorter or longer duration. In cases not recognized, the symptoms of violent headache, furious delirium, and coma, give the physician the impression that disease of the brain is present, and the case thus improperly treated terminates in death. The morbid condition in the first stage consists in acute inflammation of the extremely delicate mucous membrane lining the middle ear. This inflammation is followed by effusion of fluid, and, after twenty-four hours, by the formation of pus; it is in every instance attended by fever, with swelling and inflammation of the nasopharyngeal space, and great pain. If this fluid or pus be removed by incision into the membrana tympani, followed by the use of the air douche, and injections of hot saline water, the patient recovers, and the ear is saved. The patient is apt to remain deaf for several weeks, and the local application of tincture of iodine, with or without some anodyne, brushed around the back of the auricle, facilitates the removal of the inflammatory thickening. To diminish the discharge of pus, should it continue, we may employ a powder of salicylic acid and starch, blown into the meatus and after a time washed out, and reapplied twice a day, until the discharge shall have ceased and the perforation have become closed.